

The invention in which an exclusive right is claimed is defined by the following:

1. Apparatus adapted to be used with an item of footwear for supporting and stabilizing a portion of a user's foot in order to reduce a risk of injury from occurring, or reoccurring, or an injury already sustained from being exacerbated, during a pathological motion of a user's foot, comprising:

(a) a support foundation configured to be removably fastened to a leg of the user, at a point above an ankle of the user;

(b) at least one tension band configured to engage the support foundation, and to engage an item of footwear, said at least one tension band including at least one of the following:

(i) a first lateral tension band configured to engage the support foundation, and to engage an item of footwear at a first location disposed on the item of footwear proximate to a lateral quarter of the item of footwear, such that the first lateral tension band supports and stabilizes the user's foot by limiting lateral frontal plane motion and external rotation traverse plane motion to avoid an injury, a reoccurrence of injury, or exacerbating an existing injury of a user, the first lateral tension band being then responsible for a majority of the support and stabilization of a user's foot provided by the apparatus when the user's foot is properly positioned in the item of footwear, the first lateral tension band is tensioned to a desired tension, and the user's foot is in a plantarflexed position; and

(ii) a first medial tension band configured to engage the support foundation, and to engage an item of footwear at a second location disposed on the item of footwear proximate to medial quarter of the item of footwear, such that when the user's foot is properly positioned in the item of footwear and the first medial tension band is tensioned to a desired tension, the first medial tension band is disposed adjacent to a navicular tuberosity of the user's foot, thereby supporting and stabilizing the user's foot.

2. The apparatus of Claim 1, further including at least one of:

(a) a second lateral tension band configured to engage the support foundation, and to engage an item of footwear at a third location disposed on the item of footwear substantially proximate to a lateral heel counter of the item of footwear, such that the second tension band supports and stabilizes the user's foot by limiting lateral frontal plane motion and external rotation traverse plane motion to avoid an injury, a reoccurrence of injury, or exacerbating an existing injury of a user, the second tension band being responsible for a majority of the support and stabilization of the user's foot provided by the apparatus when the user's foot is properly positioned in the item of footwear and the second lateral tension band is tensioned to a desired tension, and the user's foot is in a neutral position; and

(b) a second medial tension band configured to engage the support foundation, and to engage an item of footwear at a fourth location disposed on the item of footwear substantially proximate to a medial heel counter of the item of footwear, the second medial tension band reducing a risk of injury, reoccurrence of an injury, or exacerbating an existing injury due to eversion when the user's foot is properly positioned in the item of footwear and the second medial tension band is tensioned to a desired tension.

3. The apparatus of Claim 2, wherein a tension of each tension band is readily adjustable by a user to achieve the desired tension for the tension band.

4. The apparatus of Claim 3, further comprising an attachment member corresponding to each tension band, each attachment member being disposed on the item of footwear at the location at which its corresponding tension band engages the item of footwear, each attachment member being configured to slidingly engage its corresponding tension band, such that when the apparatus is properly adjusted, a first end of each tension band engages the support foundation, each tension band extending from the support foundation to its corresponding attachment member, each tension band slidingly engages its corresponding attachment member, each tension band extending from its corresponding attachment member back to the support foundation, and a second portion of each tension band engaging at least one of the support foundation, a buckle disposed on that tension band, and a third portion of the tension band.

5. The apparatus of Claim 4, wherein a tension associated with each tension band includes means for achieving the desired tension by at least one of:

(a) disengaging the second portion of the tension band from the support foundation, and selecting a different portion of the tension band to engage the support foundation;

(b) disengaging the second portion of the tension band from the buckle, and selecting a different portion of the tension band to engage the buckle; and

(c) disengaging the second portion of the tension band from the support foundation, and selecting a different portion of the tension band to engage the third portion of the tension band.

6. The apparatus of Claim 4, wherein the second portion of each tension band comprises one part of a hook and loop fastener, and one of the support foundation and the third portion of the tension band comprises the other part of the hook and loop fastener.

7. The apparatus of Claim 4, further comprising an item of footwear, wherein each attachment member comprises at least one the following:

- (a) a slot formed in the item of footwear;
- (b) a grommet mounted in the item of footwear;
- (c) a ring attached to the item of footwear; and
- (d) a fixture attached to the item of footwear and having an opening through which a tension band passes.

8. The apparatus of Claim 4, wherein an attachment member for attaching to the first lateral tension band is attached to the item of footwear at a location adjacent to a base of a fifth metatarsal bone of the user's foot when the foot is properly positioned in the item of footwear and the apparatus is attached to the item of footwear.

9. The apparatus of Claim 1, wherein the support foundation is disposed substantially adjacent to a user's ankle malleoli when connected to a user's leg while the apparatus is being used.

10. The apparatus of Claim 2, wherein when the second lateral tension band is attached to the item of footwear and is tensioned to the desired tension during use of the apparatus, the second lateral tension band is substantially perpendicular to a sole of the item of footwear.

11. The apparatus of Claim 1, wherein when the first lateral tension band is attached to the item of footwear and is tensioned to the desired tension during use of the apparatus, an acute angle is formed between the first lateral tension band and a sole of the item of footwear, closest to a heel of the item of footwear.

12. The apparatus of Claim 1, wherein the first lateral tension band is movably attached to the support foundation, such that the apparatus is usable with different size items of footwear.

13. The apparatus of Claim 1, wherein the first medial tension band is movably attached to the support foundation, such that the apparatus is usable with different size items of footwear.

14. The apparatus of Claim 1, wherein the support foundation comprises an ankle collar.

15. The apparatus of Claim 14, wherein the ankle collar is removably attached to a user's leg using a hook and loop fastener.

16. The apparatus of Claim 14, wherein a first end of the ankle collar comprises a first tongue and second tongue, the first tongue being configured to removably attach the ankle collar to the user's leg proximate the user's ankle, and the second tongue being configured to secure each tension band to the ankle collar, after the apparatus is adjusted and each tension band is tensioned to the desired tension for that tension band.

17. The apparatus of Claim 1, wherein said at least one tension band is pivotally attached to the support foundation.

18. The apparatus of Claim 1, wherein each tension band comprises one of:

- (a) a textile strap; and
- (b) a generally non-elastomeric material.

19. Apparatus adapted to be used with an item of footwear for supporting and stabilizing a portion of a user's foot in order to reduce a risk of injury from occurring, reoccurring, or an existing injury from being exacerbated, during a pathological motion of the user's foot, comprising:

(a) a support foundation adapted to be removably fastened to a user's leg at a point above a user's ankle;

(b) a first tension band that engages the support foundation, and adapted to engage an item of footwear at a first location disposed on the item of footwear substantially proximate to a heel counter of the item of footwear, such that when the user's foot is properly positioned in the item of footwear and the first tension band is adjusted to a desired tension, the first tension band is substantially perpendicular to a sole of the item of footwear worn during use of the apparatus; and

(c) a second tension band that engages the support foundation, and adapted to engage an item of footwear at a second location disposed on the item of footwear proximate to a front quarter of the item of footwear, the second location being closer to a vamp of the item of footwear than to the heel counter of the item of footwear, so that when a user's foot is properly positioned in the item of footwear and the second tension band is tensioned to a desired tension, an acute angle is formed between the second tension band and the sole of the item of footwear, at a side of the second tension band that is closer to the first tension band.

20. The apparatus of Claim 19, wherein the first location is on a lateral side of the item of footwear, such that when the user's foot is properly positioned in the item of footwear and the first tension band is tensioned to the desired tension, the first tension band substantially reduces a risk of injury, a reoccurrence of an injury, or an exacerbation of an existing injury due to inversion.

21. The apparatus of Claim 19, wherein the first location is on a medial side of the item of footwear, such that when the user's foot is properly positioned in the item of footwear and the first tension band is tensioned to the desired tension, the first tension band is disposed adjacent to a posterior tibial tendon of the user's foot, thereby supporting and stabilizing the user's foot.

22. The apparatus of Claim 19, wherein the second location is proximate a medial quarter of the item of footwear, such that when the user's foot is properly positioned in the item of footwear and the second tension band is tensioned to the desired tension, the second tension band is disposed adjacent to a navicular tuberosity of the user's foot, thereby supporting and stabilizing the user's foot.

23. The apparatus of Claim 19, wherein the second location is proximate a lateral quarter of the item of footwear, such that when the user's foot is properly positioned in the item of footwear and the second tension band is tensioned to the desired tension, the second tension band is disposed adjacent to a base of a fifth metatarsal bone of the user's foot, thereby supporting and stabilizing the user's foot, particularly when the user's foot is in a plantarflexed position.

24. The apparatus of Claim 19, further comprising an additional tension band, the additional tension band engaging the support foundation, and being adapted to engage an item of footwear at a third location proximate a heel quarter of the item of footwear, such that:

(a) when the first location is on a lateral side of the item of footwear, the third location is on a medial side of the item of footwear; and

(b) when the first location is on the medial side of the item of footwear, the third location is on the lateral side of the item of footwear.

25. The apparatus of Claim 19, further comprising an additional tension band, the additional tension band engaging the support foundation, and being adapted to engage an item of footwear at a third location proximate a front quarter of the item of footwear, such that:

(a) when the second location is on a lateral side of the item of footwear, the third location is on a medial side of the item of footwear; and

(b) when the second location is on the medial side of the item of footwear, the third location is on the lateral side of the item of footwear.

26. The apparatus of Claim 19, further comprising an item of footwear, said item of footwear including an attachment member for connecting to each tension band, each attachment member being disposed on the item of footwear at the location at which one of the tension bands engages the item of footwear, each attachment member being configured to slidably engage the tension band to which it connects, such that when the tension bands are tensioned to the desired tensions, a first end of each tension band engages the support foundation, each tension band extends from the support foundation to the attachment member to which it is connected, slidably engages the attachment member, and extends back to the support foundation, a second portion of each tension band engaging at least one of the support foundation, a buckle disposed on the tension band, and a third portion of the tension band.



27. Apparatus adapted to be used with an item of footwear for supporting and stabilizing a portion of a user's foot during a pathological motion of the user's foot, comprising:

(a) a support foundation adapted to be removably fastened to a leg of a user, at a point above an ankle of the user;

(b) a primary tension band that engages the support foundation, and adapted to engage an item of footwear at a first location disposed on the item of footwear proximate to a lateral heel counter of the item of footwear, such that the primary tension band is responsible for a majority of the support and stabilization of the user's foot provided by the apparatus when:

(i) the user's foot is in a neutral position; and

(ii) the user's foot is in a dorsiflexed position; and

(c) a secondary tension band that engages the support foundation, and adapted to engage an item of footwear at a second location disposed on the item of footwear proximate to a lateral quarter of the item of footwear, such that the secondary tension band is responsible for a majority of the support and stabilization of the user's foot provided by the apparatus when the user's foot is in the plantarflexed position.

28. An item of footwear for supporting and stabilizing a portion of a user's foot during a pathological motion of the user's foot, comprising:

(a) a support foundation configured to be removably fastened to a leg of the user, at a point above an ankle of the user;

(b) a primary tension band that engages the support foundation, and adapted to engage an item of footwear at a first location disposed on the item of footwear proximate to a lateral heel counter of the item of footwear, such that the primary tension band supports and stabilizes the user's foot by limiting lateral frontal plane motion and external rotation traverse plane motion, the primary tension band being responsible for a majority of the support and stabilization of the user's foot provided by the item of footwear when the user's foot is in a neutral position; and

(c) a secondary tension band that engages the support foundation, and adapted to engage an item of footwear at a second location disposed on the item of footwear proximate to a lateral quarter of the item of footwear, such that the secondary tension band supports and stabilizes the user's foot by limiting lateral frontal plane motion and external rotation traverse plane motion, such that the secondary tension band is responsible for a majority of the support and stabilization of the user's foot provided by the item of footwear when the user's foot is in a plantarflexed position.

29. A method for supporting and stabilizing a portion of a user's foot in order to reduce a risk of injury, a reoccurrence of an injury, or an exacerbation of an existing injury from occurring during a pathological motion of the user's foot, comprising the steps of:

(a) attaching a support foundation to the user's leg, adjacent to the user's ankle malleoli; and

(b) positioning a first tension band such that the first tension band engages both the support foundation and an item of footwear at one of the following locations:

(i) a first location disposed on the item of footwear proximate to a lateral quarter of the item of footwear, such that when tensioned to a desired tension, the first tension band supports and stabilizes the user's foot, particularly when the user's foot is in a plantarflexed position; and

(ii) a second location disposed on the item of footwear proximate to medial quarter of the item of footwear, such that when the user's foot is properly positioned in the item of footwear and the first tension band is tensioned to a desired tension, the first tension band is disposed adjacent to a navicular tuberosity of the user's foot, thereby supporting and stabilizing the user's foot.

30. The method of Claim 29, further comprising the step of positioning a second tension band and tensioning the second tension band to a desired tension, such that the second tension band engages both the support foundation and the item of footwear at one of the following locations on the item of footwear:

(a) a third location disposed on the item of footwear proximate to a lateral heel counter of the item of footwear, such that the second tension band supports and stabilizes the user's foot, particularly when the user's foot is in both a neutral position and a dorsiflexed position; and

(b) a fourth location disposed on the item of footwear proximate to a medial heel counter of the item of footwear, such that the second tension band is disposed adjacent to a posterior tibial tendon.

31. The method of Claim 29, further comprising the step of adjusting the first tension band to the desired tension selected to achieve a desired degree of support.

32. The method of Claim 31, wherein a first end of the first tension band is attached to the support foundation and the first tension band slidably engages the item of footwear at one of the first and second locations, and the step of adjusting the first tension band to the desired tension comprises the steps of:

(a) pulling a second end of the first tension band generally away from the respective one of the first and second locations, and generally toward the support foundation until the desired tension is loaded; and

(b) securing the first tension band so as to maintain the desired tension.

33. The method of Claim 32, wherein the step of securing the first tension band comprises the step of attaching the second end of the first tension band to the support foundation.

34. The method of Claim 32, wherein the step of securing the first tension band comprises the step of attaching the second end of the first tension band to a portion of the first tension band disposed between the support foundation and the respective one of the first and second locations.

35. The method of Claim 32, wherein the step of securing the first tension band comprises the step of passing the first tension band through a buckle.

36. A method for supporting and stabilizing a portion of a user's foot in order to reduce a risk of injury, or a reoccurrence of an injury, or an exacerbation of an existing injury from occurring, during a pathological motion of the user's foot, comprising the steps of:

- (a) coupling a first attachment member to a lateral heel counter of an item of footwear;
- (b) coupling a second attachment member to a lateral quarter of the item of footwear;
- (c) removably coupling a support foundation to the user's leg at a point above the user's ankle;
- (d) coupling a first tension band to the support foundation;
- (e) coupling a second tension band to the support foundation;
- (f) engaging the first tension band with the first attachment member, to provide support when a user's foot is in a dorsiflexed position and a neutral position; and
- (g) engaging the second tension band with the second attachment member, to provide support when the user's foot is in a plantarflexed position.

37. The method of Claim 36, further comprising the steps of:

- (a) coupling a third attachment member to a medial heel counter of the item of footwear;
- (b) coupling a third tension band to the support foundation; and
- (c) engaging the third tension band with the third attachment member, such that the third tension band is disposed adjacent to a posterior tibial tendon of the user's foot when the user's foot is properly positioned in the item of footwear to provide support for the user's foot.

38. The method of Claim 36, further comprising the steps of:
- (a) coupling a third attachment member to a medial quarter of an item of footwear;
  - (b) coupling a third tension band to the support foundation; and
  - (c) engaging the third tension band with the third attachment member, such that the third tension band is disposed adjacent to a navicular tuberosity of the user's foot when the user's foot is properly positioned in the item of footwear, to provide support to the user's foot.